

ABSTRACT

This invention is directed to a method for etching films on semiconductor substrates and cleaning etch chambers. The method includes an improved processing sequence and cleaning method where residue formed from processing a previous substrate are cleaned by the etching process used to remove an exposed layer of material from the present substrate. The process provides improved substrate throughput by combining the step to clean residue from a previous substrate with an etch step conducted on the present substrate. Applicants have found the method particularly useful in processing structures such as DRAM stacks, especially where the residue is formed by a trench etched in the previous silicon substrate and the exposed layer etched from the present substrate is silicon nitride.